HC 220-06 Robert Copenhaver Pump Station
Consist. Report

MSA. S. 1829-5811

Comment
3/4/04

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Martin G. Madden
Chairman

Ren Serey
Executive Director

STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS
1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

May 4, 2006

Mr. Nick Walls
Environmental Planner
Harford County Planning and Zoning
220 South Main Street
Bel Air, Maryland 21014

RE: Robert Copenhaver Pump Station Consistency

Dear Mr. Walls:

Thank you for providing "Notification of Certification" that the above project is consistent with the County's Critical Area program. The County's Department of Public Works is proposing to install 2,600 linear square feet of new force main and a new 28 foot x 37 foot building at the Foster Branch Sewage Pumping Station in the Robert Copenhaver Park in Joppatown. The project will replace an existing sewer line and pump station with a force main and large pump station and connect it to the existing sewer lines. Copenhaver Park is 10.42 acres, with the proposed project, totaling 5.61 acres. The park is in a Resource Conservation Area. The Sewer Pumping Station facility will impact the 100-foot Buffer. Section 261.41.1.G(3)(b) of the County's Critical Area program allows for the facility to impact the Buffer.

This office understands:

1. That 0.13 acres of trees will be cleared for the footprint of the pumping station and an additional 0.07 acres will be cleared for the installation of the sanitary sewer line.

2. That forest mitigation in the amount of 0.21 acres is proposed on-site. A reforestation area is proposed east of the existing entrance, along the Foster Branch tributary. The planting area will total 0.09 acres;

3. That there are no impacts to rare, threatened and endangered species;

4. That the impacts of the pumping station building in the 100-foot Buffer will be designed to minimize any environmental impacts; and,

5. That the project will maintain its predevelopment pollutant loadings by the use of grass channels and a level spreader.

The Commission staff has determined that the above proposed development: 1) has environmental or economic consequences that will largely be confined to the immediate area of the site on which the development is located, 2) does not substantially affect the Critical Area program of the local jurisdiction, and 3) is not considered by the Commission as major development. *(See COMAR: Chapter Two, Regulations for Development in the Critical Area Resulting from State and Local Agency Programs).*

Therefore, approval of the above project by the Commission is not necessary. If there are any changes in development that may affect the habitat within the area on site, this office would like to be notified immediately at (410) 260-3483.

Sincerely,

Dawnn McCleary

Dawnn McCleary
Natural Resources Planner

cc: Pete Gutwald
Pat Pudelkewicz
Regina Esslinger
HA 220-06

DAVID R. CRAIG
HARFORD COUNTY EXECUTIVE

LORRAINE COSTELLO
DIRECTOR OF ADMINISTRATION

C. PETE GUTWALD
DIRECTOR OF PLANNING & ZONING

HARFORD COUNTY GOVERNMENT

Department of Planning and Zoning

April 6, 2006

MEMORANDUM

TO: Critical Area Commission

FROM: C. Pete Gutwald
Director of Planning and Zoning

RE: Consistency Report for the Foster Branch Sanitary Sewer

The Sewer Pump station project proposed for the Foster Branch area of Joppatowne Maryland is a necessary utility. The siting of this facility is such that it impacts the 100 Foot Buffer. This impact is unavoidable due to the nature of the facility. The pump station has been located in the area shown due to the engineering requirements of a sewage pumping station and is further detailed on the attached documentation.

It is my determination, in coordination with the Department of Public Works, that this location is necessary. Furthermore, this project has been designed and will be constructed in such a manner as to minimize, to the maximum extent possible, any environmental impacts. Therefore, per the Harford County Zoning Code, Section 267.41.1.G.(3).(b), this impact to the Buffer is permitted.

CPG/dl
Attach:

CC: Pat Pudelkewicz, Chief, GIS and Environmental Planning

HC220-06

DAVID R. CRAIG
HARFORD COUNTY EXECUTIVE

LORRAINE COSTELLO
DIRECTOR OF ADMINISTRATION

C. PETE GUTWALD
DIRECTOR OF PLANNING & ZONING

HARFORD COUNTY GOVERNMENT

Department of Planning and Zoning

April 5, 2006

Ms. Dawnn McCleary
Chesapeake Bay Critical Area Program
1804 West Street, Suite 100
Annapolis, Maryland 21401

RE: Robert Copenhaver Pump Station Consistency Report

Dear Ms. McCleary:

Enclosed, please find a copy of the Consistency Report for the proposed sewage pumping station at the Robert Copenhaver Park in Joppatowne. This proposal is for the installation of a 28' x 37' building and associated structures. This property was originally included in the Critical Area as an expansion area and is designated as a Resource Conservation Area.

This proposal is consistent with Harford County's Critical Area Regulations. The project maintains its pre-development pollutant loadings by two means; a grass channel and level spreader combination, as well as through mitigative plantings. The new proposed impervious surfaces total 3,364 square feet while the proposed plantings equal 3,600 square feet. A total of 12.2% of the site will exist in impervious surface after this proposal. A 10% Worksheet is attached.

A statement from the Director of Planning and Zoning addressing the necessity of locating this project within the Buffer is also attached. Harford County has certified that this project is of local significance and is consistent with the County's Critical Area Regulations. We ask that the Critical Area Commission agree with this certification.

Please review this project and provide us with your comments. If you have any questions please do not hesitate to contact me at (410) 638-3103, extension 1378.

Sincerely,

Nick Walls
Critical Area Planner

NW/dl

RECEIVED
APR 7 2006
CRITICAL AREA COMMISSION
Chesapeake and Atlantic Coastal Bays

DAVID R. CRAIG
HARFORD COUNTY EXECUTIVE

LORRAINE COSTELLO
DIRECTOR OF ADMINISTRATION

ROBERT B. COOPER, P.E.
DIRECTOR OF PUBLIC WORKS

JOEL V. CAUDILL, P.E.
DEPUTY DIRECTOR OF WATER & SEWER

HARFORD COUNTY GOVERNMENT

DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER AND SEWER

MEMORANDUM

TO: Nick Walls
Department of Planning and Zoning

FROM: Joel V. Caudill, P.E.
Deputy Director of Water and Sewer

DATE: March 23, 2006

RE: Foster Branch Pumping Station (Finding of Facts)

This correspondence is intended to fulfill the "Finding of Facts" criteria related to the Critical Areas report for the Foster Branch Pumping Station and Force Main, Project #6646.

The Foster Branch Sewage Pumping Station was located in the Copenhaver Park in order to replace the existing Trimble Road sewage pumping station along with two other stations in nearby developments. The park location was selected because of it's proximity to the three stations that will be abandoned and the topography of the area. It is the best location that allows gravity drainage from all three adjoining areas. The specific area on the park property was selected to be the least obtrusive to future park use.

If you have any questions, please do not hesitate to contact myself or the project manager Dave Pergrin at 410-638-3300.

DEP:JVC/kmg

This is in the RCA

Worksheet A: Standard Application Process

Calculating Pollutant Removal Requirements[1]

Step 1: Calculate Existing and Proposed Site Imperviousness

A. Calculate Percent Imperviousness

1) Site Area within the Critical Area IDA, A = 5.61 acres

2) Site Impervious Surface Area, Existing and Proposed, (See Table 4.1 for details)

	(a) Existing (acres)	(b) Proposed (acres)
Roads	.13	.13
Parking lots	.48	.48
Driveways		
Sidewalks/paths		
Rooftops (and additional parking)		.077 *
Decks		
Swimming pools/ponds		
Other		
Impervious Surface Area	.61	.687

3) Imperviousness (I)

Existing Imperviousness, I_{pre} = Impervious Surface Area / Site Area
= (Step 2a) / (Step 1)
= (.61) / (5.61)
= 10.9 %

Proposed Imperviousness, I_{post} = Impervious Surface Area / Site Area
= (Step 2b) / (Step 1)
= (.687) / (5.61)
= 12.2 %

B. Define Development Category (circle)

1) New Development: Existing imperviousness less than 15% I *(Go to Step 2A)*

2) Redevelopment: Existing imperviousness of 15% I or more *(Go to Step 2B)*

3) Single Lot Residential Development: Single lot being developed or improved; single family residential development; and more than 250 square feet of impervious area and associated disturbance (Go to Section 5, Residential Approach, for detailed criteria and requirements).

[1] NOTE: All acreage used in this worksheet refers to areas within the IDA of the Critical Area only.

Step 2: Calculate the Predevelopment Load (L_{pre})

A. New Development

L_{pre} = (0.5) (A)

= (0.5) (5.61)

= 2.805 lbs /year of total phosphorus

Where:

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
0.5 = Annual total phosphorus load from undeveloped lands (lbs/acre/year)
A = Area of the site within the Critical Area IDA (acres)

B. Redevelopment

L_{pre} = (R_v) (C) (A) (8.16)

R_v = 0.05 + 0.009 (I_{pre})

= 0.05 + 0.009 (_____) = _____

L_{pre} = (_____) (_____) (_____) (8.16)

= _____ lbs/year of total phosphorus

Where:

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
I_{pre} = Pre-development (existing) site imperviousness (i.e., I = 75 if site is 75% impervious)
C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l
A = Area of the site within the Critical Area IDA (acres)
8.16 = Includes regional constants and unit conversion factors

Step 3: Calculate the Post-Development Load (L_{post})

A. New Development and Redevelopment:

L_{post} = (R_v) (C) (A) (8.16)

R_v = $0.05 + 0.009 (I_{post})$

= $0.05 + 0.009 (\underline{12.2}) = \underline{.1598}$

L_{post} = $(\underline{.1598}) (\underline{.3}) (\underline{5.61}) (8.16)$

= $\underline{2.19}$ lbs/year of total phosphorus

Where:

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff

I_{post} = Post-development (proposed) site imperviousness (i.e., I = 75 if site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l

A = Area of the site within the Critical Area IDA (acres)

8.16 = Includes regional constants and unit conversion factors

Step 4: Calculate the Pollutant Removal Requirement (RR)

RR = $L_{post} - (0.9) (L_{pre})$ - none required

= $(\underline{\quad}) - (0.9) (\underline{\quad})$

= $\underline{\quad}$ lbs/year of total phosphorus

Where:

RR = Pollutant removal requirement (lbs/year)

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

2.19
2.52
0.33

(2.19) - 0.9 (2.805)

2.19 - 2.52 = - 0.33

Step 5: Identify Feasible BMP(s)

Select BMP Options using the screening matrices provided in the Chapter 4 of the 2000 Maryland Stormwater Design Manual. Calculate the load removed for each option.

BMP Type	(L_{post})	x	(BMP_{RE})	x	(% DA Served)	=	LR
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year

Load Removed, LR (total) = _____ lbs/year

Pollutant Removal Requirement, RR (from Step 4) = _____ lbs/year

Where:

Load Removed, LR	=	Annual total phosphorus load removed by the proposed BMP (lbs/year)
L_{post}	=	Average annual load of total phosphorus exported from the post-development site (lbs/year)
BMP_{RE}	=	BMP removal efficiency for total phosphorus, Table 4.8 (%)
% DA Served	=	Fraction of the site area within the critical area IDA served by the BMP (%)
RR	=	Pollutant removal requirement (lbs/year)

If the Load Removed is equal to or greater than the Pollutant Removal Requirement computed in Step 4, then the on-site BMP complies with the 10% Rule.

Has the RR (pollutant removal requirement) been met? ☐ **Yes** ☐ **No**

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing ASFE Member Firm

March 15, 2006

Morris & Ritchie Associates, Inc.
3445-A Box Hill Corporate Center Drive
Abingdon, Maryland 21009

Attn: Mr. Don Lassahn

Re: Environmental Assessment
Foster Branch, Sanitary Sewer Connector
Harford County, Maryland

Dear Mr. Lassahn:

Geo-Technology Associates, Inc. (GTA) has performed an Environmental Assessment (EA) of the above referenced property located in the Edgewood area of Harford County, Maryland. This EA Report and attached Plan include information required to satisfy the Harford County Critical Area Zoning regulations and the Chesapeake Bay Critical Area requirements.

Should you have any questions regarding this report, or should you require additional information please contact this office at (410) 515-9446.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.

Gabrielle S. Myers
Project Scientist

GSM/MDR/klt
051381
L:\Shared\Env\Reports\051381 Foster Branch\051381 Foster Branch (13632) Environmental Assessment.doc

cc: Mr. Nick Walls / Harford County DPW (3 copies)
Mr. David Pergrin / Harford County DPW (1 copy)

REPORT OF
ENVIRONMENTAL ASSESSMENT

FOSTER BRANCH, SANITARY SEWER CONNECTOR
HARFORD COUNTY, MARYLAND

March 2006

Prepared for:

MORRIS & RITCHIE ASSOCIATES, INC.
3445-A Box Hill Corporate Center Drive
Abingdon, Maryland 21009

Attn: Mr. Don Lassahn

Prepared by:

GEO-TECHNOLOGY ASSOCIATES, INC.
Geotechnical and Environmental Consultants
3445A Box Hill Corporate Center Drive
Abingdon, Maryland 21009
(410) 515-9446

GTA Project No: 051381

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HARFORD COUNTY, MARYLAND
MARCH 2006

INTRODUCTION

Geo-Technology Associates, Inc. (GTA) has prepared this Environmental Assessment (EA) Report at the request of Morris & Ritchie Associates, Inc. (MRA) for the Foster Branch Sanitary Sewer Connector project site. The purpose of the proposed project consists of replacing an existing gravity sewer line and pump station with a force main and a larger pump station. The proposed force main and pump station will connect to existing sewer lines.

The purpose of this report is to provide a coherent statement of how the portion of the proposed project located within the Chesapeake Bay Critical Area (CBCA) addresses the goals and objectives of the CBCA program. This document describes the existing site conditions and the natural resources present at the site. This report also describes the requirements of development projects proposed within the CBCA Resource Conservation Area (RCA) and how the Foster Branch Sanitary Sewer Connector project meets the requirements.

SITE LOCATION

The Foster Branch project site is located within the Edgewood area of Harford County, Maryland. More specifically, the project site is located within the Copenhaven Park, and extends along Trimble Road from Garnett Road to Fort Hoyle Road. Copenhaven Park is located approximately 2,000 feet west of the intersection of Maryland Route 152 – Magnolia Road and Trimble Road (*Site Location Map - Figure 1*).

According to the Maryland Department of Assessments and Taxation (MDAT) database system, the Copenhaven Park property is referenced on Harford County Tax Map 69, as Parcel 68. Parcel 68 encompasses 10.42± acres and is currently owned by the Harford County Commissioners. The Foster Branch Sanitary Sewer Connector project lies on 0.59± acres of park property adjacent to Trimble Road. Parcel 68, currently used as the Copenhaven Park, is

entirely within the Chesapeake Bay Critical Area. The portion of the project area that extends along Trimble Road from Garnett Road to Fort Hoyle Road is not within the Critical Area.

EXISTING CONDITIONS

The project area for the Foster Branch Sanitary Sewer Connector contains numerous natural resources. Natural resources within the portion of the project area located at the Copenhaven Park consist of the Chesapeake Bay Critical Area, two stream channels, 100-year floodplain, non-tidal wetland, and forest. A copy of a portion of the U.S. Geological Survey Quadrangle Map (Edgewood, Maryland) for the site is included within this report as *Figure 2 (Topographic Map)*.

Foster Branch and one of its tributaries traverse the project site. Both channels enter the project area from the north, travel under Trimble Road through existing culverts, exit the site, and continue in a southern direction. The project area is also located within the 100-year floodplain, as indicated on the Harford County FEMA Map numbers 24025C0261 and 24025C0262, dated April 4, 1975. Foster Branch and the unnamed tributary are within the Gunpowder River sub-watershed and contribute to the Chesapeake Bay. The use class designation is Use I–Water Contact Recreation and Protection of Aquatic Life.

According to the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) *Soil Survey of Harford County Area, Maryland* (1975), the project site is underlain by Alluvial Land (Av) and Loamy and Clayey Land (LyE). Alluvial land consists of recently deposited sands and sandy loams on floodplains adjacent to streams. Alluvial land is somewhat poorly drained to very poorly drained and is regularly flooded. Loamy and Clayey land consists of old clay deposits covered by younger loams and sandy loams. Soil colors, textures, and horizon thicknesses are inconsistent throughout the series. Loamy and Clayey soils are severely limited and lack stability due to their plastic and sticky characteristics when wet and due to their presence on 15-30 percent slopes. According to the *Hydric Soils of Maryland* publication by the Soil Conservation Service (November 1996), only the Alluvial Land soils are considered hydric. A copy of a portion of the *Soil Survey* for the site is included within this report as *Figure 3*.

On-site vegetation consists of maintained grassed areas and young forest adjacent to both stream channels. Young forest adjacent to Foster Branch and its tributary varies in width from two to 25 feet wide, and is primarily composed of trees and contains few shrubs and herbaceous species. The areas of on-site forest located within the limit of disturbance total 10,517± square feet (0.24± acres). Trees located adjacent to the eastern side of the east tributary are located beneath an existing overhead electric line and are regularly trimmed. Areas maintained as grass are located along Trimble Road, and between the existing park building, pond, and the stream west of the access drive.

The environmental features identified within the Foster Branch, Sanitary Sewer Connector project site and discussed above are summarized in the following chart:

Natural Features/Designations

Feature/Designation:	Identified	Not Identified
Critical Area	X	
Critical Area Buffer		X
Tidal Wetlands		X
Nontidal Wetlands	X	
Hydric Soils	X	
Highly Erodible Soils		X
Slopes over 15%	X	
100-Year Floodplain	X	
Riparian Forest	X	
Interior Dwelling Bird Habitat		X
Colonial Water Bird Nesting Site		X
Historic Waterfowl Staging Area		X
Rare, Threatened, or Endangered Species		X
Natural Heritage Area		X
Anadromous Fish Propagation Water		X
Submerged Aquatic Vegetation		X
Areas of Significant Shore Erosion		X

PROPOSED CONDITIONS: SANITARY SEWER CONNECTOR

According to the MRA plan, entitled *Foster Branch Sewage Pump Station and Force Main,* dated December 2005, the project proposes the installation of approximately 2,600 feet of new force main and a new 28-foot-wide by 37-foot-long pumping station. Although the project site is within the CBCA, it is not adjacent to, nor encompasses any waterfront or tidally influenced land/waterways. The pumping station is proposed directly adjacent to the existing paved access drive that leads into the park. Approximately 0.13 acres (5,549 square feet) of trees will be cleared for the footprint of the pumping station and an additional 0.07-acre (±) area will be cleared for the installation of the sanitary sewer line. The southwestern corner of the pumping station lies within the 100-year floodplain and the finished floor will be at the 100-year floodplain elevation. Excavation in the wetland will also be required for other components of the pumping station as shown on the enclosed *Foster Branch Sewage Pump Station and Force Main* plan prepared by MRA. A Joint Permit Application for the temporary and permanent impacts required to complete the proposed project is currently under review by the Maryland Department of the Environment (MDE). A paved entrance off of the access drive and a parking area surrounding three sides (north, east, and south) of the pumping station will be provided. The pumping station will be enclosed by security fence, and gates will remain locked when the station is not in use. The remaining areas within the security fence that are not proposed to be paved will be planted with native herbaceous vegetation as shown on the enclosed *Sewage Pumping Station Site Plan, (Appendix D).*

RESOURCE CONSERVATION AREA: DEVELOPMENT REQUIREMENTS

Development on lands located within the CBCA is governed by regulations that were developed according to land use management categories. Land use management categories consist of Intensely Developed Areas (IDA), Limited Development Areas (LDA), and Resource Conservation Areas (RCA). County municipalities often refer to the land use management categories as Overlay Zones. Development within the RCA is regulated in order to maintain and promote continued agricultural land uses, forested areas, and undisturbed areas of natural habitat. The following sections describe those RCA Critical Area regulations that apply to the Foster Branch, Sanitary Sewer Connector project.

Development Density

Development density for land within the Critical Area is limited according to standards established for each overlay zone. New residential development within the Resource Conservation Area shall be at a maximum density of one dwelling unit per twenty acres. Since the Foster Branch project does not include residential development, the development density requirement does not apply.

Habitat Protection Areas

Habitat Protection Areas are defined by the Harford County Critical Area Overlay Ordinance as areas of "significant natural value." Areas of significant natural value are further defined to include the following:

- critical area buffers,
- non-tidal wetlands,
- habitats of state-designated threatened or endangered species or species in need of conservation, natural heritage areas and habitats of local significance,
- colonial waterbird nesting sites,
- riparian forests and other forested areas used as breeding habitat by forest-interior-dwelling species,
- anadromous fish propagation waters, and
- historic waterfowl staging and concentration areas in tidal waters, tributary streams, or tidal and non-tidal wetlands.

GTA's field reconnaissance verified the presence of environmental features within the project area as shown on the *Foster Branch Pump Station & Force Main* plan prepared by MRA. Environmental features included the Foster Branch mainstem, a tributary to Foster Branch, non-tidal wetlands, and non-tidal wetland buffers. Additional environmental features present on-site consist of a 100-year floodplain for each tributary, and riparian forest.

On-site riparian forest lacks diversity and is small. Based on these characteristics, it is likely that the project site is providing little wildlife habitat and that the project will not have

adverse impacts on rare, threatened, or endangered species habitat. Additionally, due to the limited scope of the project and the distance of the project site from open tidal water, it is not probable that the proposed project will have an adverse impact on colonial waterbird nesting sites, historic waterfowl staging areas, or anadromous fish species. To verify this, GTA has sent letters to the United States Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources (DNR) Wildlife and Heritage Division, requesting information on any known Natural Heritage Areas and/or the known presence of threatened and endangered species in the project area. Copies of GTA's written inquiries and the responses received are attached to this report as Appendix A.

Forest Mitigation

Forest mitigation is required when forest, in any amount, is cleared within the Critical Area. According to the forest mitigation requirements for land within the Resource Conservation Area overlay zone, 20 percent of the total amount of on-site forest can be cleared and replaced at a 1:1 ratio. Should greater than 20 percent and less than 30 percent of forest be cleared, forest mitigation is required at a 1:1.5 ratio. Clearing violations or clearing that exceeds 30 percent of the total on-site forest "shall be replanted at three times the areal extent of the cleared forest" (COMAR 27.01.02.04).

The Foster Branch project site encompasses a total of 5.61± acres. Of this total forest, 0.20± acres (8,515 square feet) are proposed to be cleared for the construction of the new pumping station and sanitary sewer utility. Forest proposed to be cleared is approximately 3.5 percent of the total forest present on-site. Since the percentage of forest to be cleared is less than 20 percent of the total on-site forest, forest mitigation is required at a 1:1 ratio.

Forest mitigation in the amount of 0.21 acres is proposed on-site. High priority reforestation areas identified within the project boundary consist of unforested areas within the 100-year floodplain adjacent to Foster Branch and its tributary as shown on the *Environmental Assessment Plan*. The largest reforestation area is proposed east of the existing entrance, along the Foster Branch tributary. This planting area totals approximately 4,236 square feet (0.09 acres). The remaining two planting areas proposed are adjacent to existing forest along the

mainstem of Foster Branch. Reforestation along Foster Branch totals approximately 5,320 square feet (0.12 acres). Plantings do not extend into the utility easement or over the sanitary sewer line because the area will be maintained for access. Detailed planting plans can be referenced in *Appendix B – Environmental Assessment Plan.*

Pollutant Loading Requirements

Development projects located within the RCA Overlay Zone are required to maintain pre-development pollutant loadings. The Harford County Zoning Code stipulates that pollutant loads expected to result from the proposed development be reduced to match those of the pre-development conditions. The Zoning Code also stipulates that the best management and storm water management practices used to reduce pollutant loading be from those methods described in the "*Critical Area 10% Rule Guidance Manual.*" Pollutant loadings expected from the Foster Branch project will be reduced to match pre-development conditions through the installation of a level spreader and filter strip. The level spreader and filter strip are proposed within the western portion of the project area, down slope of the pumping station. In this location, the level spreader will capture runoff from the pumping station and its parking lot, and distribute the runoff evenly to the filter strip where it will infiltrate back into the ground.

SUMMARY

This Environmental Assessment performed for the Foster Branch project site identified several environmental features, including non-tidal wetlands, streams, and a 100-year floodplain. The proposed Foster Branch project was designed to limit and/or avoid unnecessary impacts to the on-site environmental features. Impacts to existing forest, non-tidal wetlands, and the 100-year floodplain were avoided to the greatest extent practicable, but were not able to be avoided fully due to engineering constraints. Forest mitigation is proposed in locations where the existing riparian corridor for Foster Branch and its tributary will be widened by a minimum of 30 feet and provide a greater amount of habitat than is currently present. The Foster Branch Environmental Assessment satisfies the Harford County Critical Area and CBCA requirements while enhancing the existing natural environmental features present at the project site.

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Robert L. Ehrlich, Jr., *Governor*
Michael S. Steele, *Lt. Governor*
C. Ronald Franks, *Secretary*

February 14, 2006

Ms. Gabrielle S. Myers
Geo-Technology Associates, Inc.
3445-A Box Hill Corporate Center Drive
Abingdon, MD 21009

RE: Environmental Review for Foster Branch, Sanitary Sewer Connection, Harford County, Maryland.

Dear Ms. Myers:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. Please note however that the utilization of state funds, the need to obtain a state-authorized permit, or changes to the plan might warrant additional evaluations that could lead to protection or survey recommendations by the Wildlife and Heritage Service. Please contact us again for further coordination if this project falls into one of those categories.

We would also like to point out that our initial evaluation of this project should not be interpreted as meaning that it is not possible for rare, threatened or endangered species to be present. Certain species could be present without documentation because adequate surveys may not have been conducted in the past. Although we are not requiring any surveys, we would like to bring to your attention that Wildlife and Heritage Service's Natural Heritage database records do indicate that there is a record for state-listed threatened Parker's Pipewort (*Eriocaulon parkeri*) known to occur within the vicinity of the project site, downstream in Foster Branch. If the appropriate habitat is present for this species it could potentially occur on the project site itself. Since the population of this native plant has declined historically we would encourage efforts to help conserve it across the state. We would encourage the applicant to strictly adhere to all appropriate best management practices during all work, in order to reduce the likelihood of adverse impacts to this and other native species. Feel free to contact us if you would like technical assistance regarding the conservation of this important species.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER #2005.2880.ha
cc: D. Brinker, WHS
R. Esslinger, CAC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

January 19, 2006

Gabrielle S. Myers
GTA
3445-A Box Hill Corporate Center Drive
Abingdon, MD 21009

RE: Foster Branch, Sanitary Sewer Connection, Harford County, MD

Dear Ms. Myers:

This responds to your letter, received January 5, 2006, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Maricela Constantino at (410) 573-4542.

Sincerely,

G. J. Moser

for Mary J. Ratnaswamy, Ph.D.
Program Supervisor, Threatened and Endangered Species

FOSTER BRANCH SEWAGE PUMP STATION AND FORCE MAIN

SEWER CONTRACT NO. 6646

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS, BUREAU OF CONSTRUCTION MANAGEMENT, AT LEAST THREE (3) DAYS PRIOR TO STARTING CONSTRUCTION. PHONE 410-638-3217, OR BY FAX 410-879-8439.
2. CONSTRUCTION OF THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS AND DETAILS FOR WATER MAINS AND SANITARY SEWERS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND WITH THE CONTRACT PLANS AND SPECIFICATIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MARYLAND OCCUPATIONAL SAFETY LAWS, SEE HARFORD COUNTY STANDARD SPECIFICATIONS. ALL MATERIALS USED ON THIS PROJECT SHALL BE LISTED IN THE APPROVED MATERIALS LIST AND IDENTIFIED IN THE RULES AND REGULATIONS OF THE DIVISION OF WATER AND SEWER.
3. ALL WORK WITHIN THE HARFORD COUNTY ROAD RIGHT-OF-WAYS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS, THE HARFORD COUNTY ROAD CODE REQUIREMENTS, AND THE HARFORD COUNTY UTILITY CONSTRUCTION PERMIT.
4. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "MISS UTILITY" (1-800-257-7777) 72 HOURS PRIOR TO THE START OF CONSTRUCTION. ALL LOCATION MARKINGS FOR WATER AND SEWER LINES WILL BE PROVIDED THROUGH A REQUEST TO THE MISS UTILITY ONE CALL SYSTEM BY THE HARFORD COUNTY DIVISION OF WATER AND SEWER. IT IS THE CONTRACTORS RESPONSIBILITY TO REFERENCE AND MAINTAIN THE LOCATION MARKINGS DURING CONSTRUCTION OF THE PROJECT. IN THE EVENT THAT A UTILITY LOCATION NEEDS TO BE REESTABLISHED BY HARFORD COUNTY, THE COST TO PROVIDE THIS SHALL BE BORNE BY THE CONTRACTOR.
5. EXISTING UTILITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR AND THE COMPLETENESS OR ACCURACY OF THE SAME IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES BEFORE TRENCH EXCAVATION BEGINS. HE SHALL PROTECT SERVICE CONNECTIONS AND MAINTAIN THEIR UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.
6. COORDINATES SHOWN ON THIS DRAWING REFER TO THE HCMC COORDINATE SYSTEM (NAD 83) AND ARE BASED ON HARFORD COUNTY MONUMENT MAGNOLIA 2, N 643,670.35 E 1,500,367.93 ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 WITH LOCAL REFERENCE TO BENCH MARK: MAGNOLIA 2 - N 643,670.35 E 1,500,367.93 - ELEV. 176.86.
7. ALL PIPE ELEVATIONS ARE TO INVERT OF PIPE, UNLESS OTHERWISE SPECIFIED.
8. ALL AREAS DISTURBED WITHIN EASEMENTS AND RIGHT-OF-WAYS SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTIED PRIOR TO THE START OF CONSTRUCTION. ROADSIDE DRAINAGE DITCHES, CULVERTS, AND UNDER DRAINS WHICH ARE DAMAGED OR DESTROYED BY CONSTRUCTION WILL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO THE START OF CONSTRUCTION. THE COST OF ANY RESTORATION SHALL BE BORNE BY THE CONTRACTOR.
9. SEDIMENT CONTROL SIGN-OFF IN THE SIGNATURE BLOCK DOES NOT RELEASE THE ENGINEER/OWNER FROM OBTAINING AN APPROVED SEDIMENT AND EROSION PLAN AND A GRADING PERMIT.
10. A HARFORD COUNTY ROADS UTILITY CONSTRUCTION PERMIT IS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF THIS PROJECT. CONTRACTOR SHALL NOTIFY THE HARFORD COUNTY DEPARTMENT OF UTILITY MANAGEMENT AT 410-638-3420 48 HOURS PRIOR TO THE BEGINNING CONSTRUCTION WITHIN EXISTING COUNTY ROADWAYS.
11. A TRAFFIC CONTROL PLAN MAY BE REQUIRED, AND IF REQUIRED MUST BE APPROVED FOR THIS PROJECT PRIOR TO CONSTRUCTION. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
12. THE INSPECTOR SHALL VERIFY THAT THE MANHOLES TO WHICH CONNECTIONS ARE PROPOSED MEET COUNTY STANDARDS UPON COMPLETION OF CONSTRUCTION ACTIVITIES. IF NOT THE MANHOLE SHALL BE REHABILITATED ACCORDINGLY.
13. ALL TRENCH COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 02250, D.2A OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED ON THE PROFILES, OR AS SPECIFIED BY THE HARFORD COUNTY UTILITY CONSTRUCTION PERMIT.
14. THE CONTRACTOR SHALL COORDINATE LIMITS OF CONSTUCTION STAGING AREA (ON THE PUBLIC PARKING LOT), AND TEMPORARY SECURITY FENCE WITH DEPT. OF PARKS & RECREATION. CONTACT BOB LEE GEDDES 410-638-3571 ONE WEEK PRIOR TO START OF CONSTRUCTION.
15. CONSTRUCTION ACTIVITIES SHALL NOT BE PERMITTED WITHIN THE ROBERT COPENHAVER PARK ON FRIDAYS AFTER 5pm, SATURDAYS, AND SUNDAYS BETWEEN AUGUST 1st AND NOVEMBER 30th.
16. ROBET COPENHAVER PARK WATER SERVICE SHALL NOT BE DISRUPTED BETWEEN AUGUST 1st, AND NOVEMBER 30th.
17. A 1.0' MINIMUM VERTICAL CLEARANCE TO BE PROVIDED BETWEEN OUTSIDE WATER/SEWER SERVICES AND OUTSIDE OF STORM DRAIN PIPE OR STRUCTURE.
18. THE CONTRACTOR SHALL VIDEO TAPE THIS PROJECT SITE AND ALIGNMENT PRIOR TO CONSTRUCTION AND SUBMIT ONE COPY EACH TO HARFORD COUNTY BUREAU OF CONSTRUCTION MANAGEMENT AND DIVISION OF WATER AND SEWER PROJECT MANAGER, AT THE PRE-CONSTRUCTION MEETING.
19. THIS DRAWING DOES NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE MARYLAND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS, AND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, REGARDLESS OF ANY INPUT FROM THE OWNER, DEVELOPER OR ENGINEER.

"AS-BUILT"

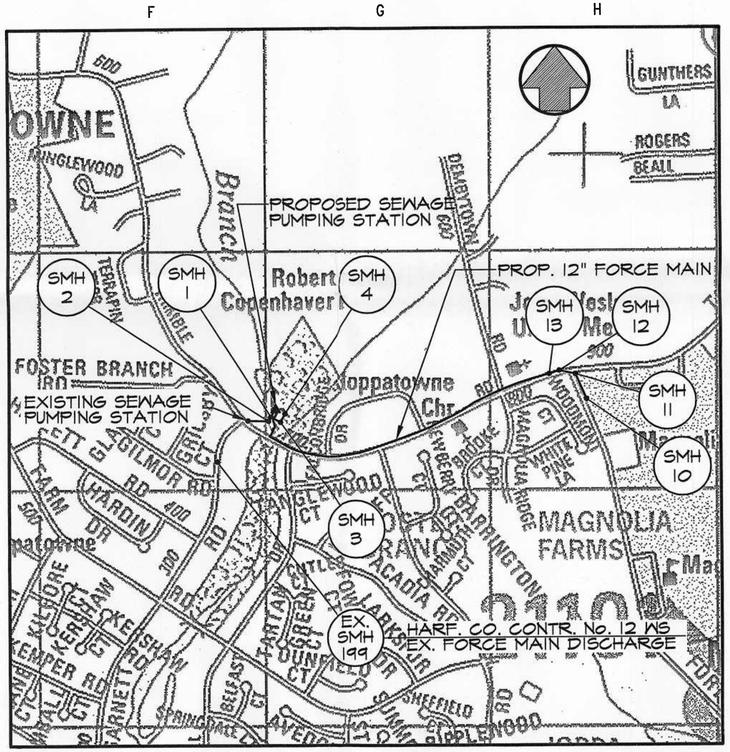
"I hereby certify that the "as-built" drawings correctly show the appurtenances; certify means to state or declare a professional opinion based upon onsite inspections and as-built surveys which are conducted after the water and sewer utilities are constructed. The onsite inspections and as-built surveys are those visual observations and surveys deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices."

Survey Date

Signature P.E.# Date

LEGEND

	S.E.C.
• • • • • • • • • • • • • • • • • • • •	LIMIT OF DISTURBANCE (LOD)
——SSF——SSF——	SUPER SILT FENCE
——SF——SF——	SILT FENCE
	LIMITS OF WOODS CLEARING
	SEDIMENT CONTROL ENTRANCE W/ MOUNTABLE BERM
	SAND BAG STREAM DIVERSION
	RIP RAP



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PERMITTED USE NO. 20406114

ADC MAP NO. 28
GRIDS F5, G5, & H5

LOCATION MAP

SCALE: 1" = 600'

INDEX OF DRAWINGS

LEGEND

EXISTING	
	ADJOINING PROPERTY
	RIGHT OF WAY
	CL OF ROAD
	EDGE OF PAVING
	CURB
22	2' CONTOUR
20	10' CONTOUR
	WETLANDS
	25' WETLANDS BUFFER
	STREAM EDGE/CENTER
	100 YR FLOODPLAIN
STM	STORM DRAIN
W	WATER
S	SANITARY SEWER
	WOODS/TREE
X X X X	FENCE
E E E E	UNDERGROUND ELECTRIC
C C C	UNDERGROUND COMMUNICATIONS
	BOLLARD, ST. SIGN, MAILBOX, ETC.
	GUARDRAIL

EXISTING (CONT'D.)	
AV	UTILITY POLE/STREET LIGHT
SOILS	SOILS
	STRUCTURE
ADC MAP #? GRID ?-? / ADC MAP #? GRID ?-?	ADC GRID LINE
PROPOSED	
	EDGE OF PAVING
	1' CONTOUR
	2' CONTOUR
	10' CONTOUR
450	FORCE MAIN/STATION
	GRAVITY SEWER
	STRUCTURE
	PAVING
	FENCE/GATE

BILL OF MATERIALS - SEWER & FORCE MAIN

QUANTITY	DESCRIPTION	SIZE	MANUFACTURER
30 LF	SEWER SERVICE (PVC)	6"	
1 EA	CLEANOUT	4"	
185 LF	SEWER MAIN (D.I.P.)	8"	
458 LF	SEWER MAIN (PVC)	15"	
146 LF	SEWER MAIN (D.I.P.)	18"	
2,800 LF	FORCE MAIN (D.I.P.)	12"	
11 VF	PRECAST TYPE 'A-2' MANHOLE	48"	
25 VF	PRECAST TYPE 'A-2' MANHOLE	60"	
5 EA	LOCKING MH FRAME & COVER	24"	
4 EA	WATERTIGHT MH FRAME & COVER	24"	
4 EA	ODOR CONTROL DISH	-	
1 EA	GATE VALVE	18"	
1 EA	GATE VALVE	12"	
1 EA	1/32 BEND	12"	
2 EA	1/16 BEND	12"	
4 EA	1/8 BEND	12"	
1 EA	WYE BRANCH	12"x6"	
1 EA	PUMP AROUND CONNECTION	-	
2 EA	ROADWAY VALVE BOX	-	

BILL OF MATERIALS - WATER SERVICE

QUANTITY	DESCRIPTION	SIZE	MANUFACTURER
480 LF	WATER SERVICE (PVC)	2"	
1 EA	SERVICE SADDLE	2"	
3 EA	CURB STOP W/ ROADWAY BOX	2"	
1 EA	CAP	2"	
1 EA	BLOW OFF	2"	

HARFORD COUNTY, MARYLAND

HARFORD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
ROBERT B. COOPER, P.E.
DIRECTOR

APPROVED	REV. NO.	DATE	REVISION	BY

PLANNING	ENGINEERING	AS-BUILT PER INSPECTOR
MAINTENANCE CHIEF	OPERATIONS CHIEF	TRANS. BY:
LAND ACQUISITION	CONST. MGMT.	DATE:
SEDIMENT CONTROL	TRAFFIC CONTROL	RESIDENT INSPECTOR:

RECEIVED
APR 7 2006
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

HARFORD COUNTY MARYLAND

DIRECTOR, DEPARTMENT OF PUBLIC WORKS — DATE

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER — DATE

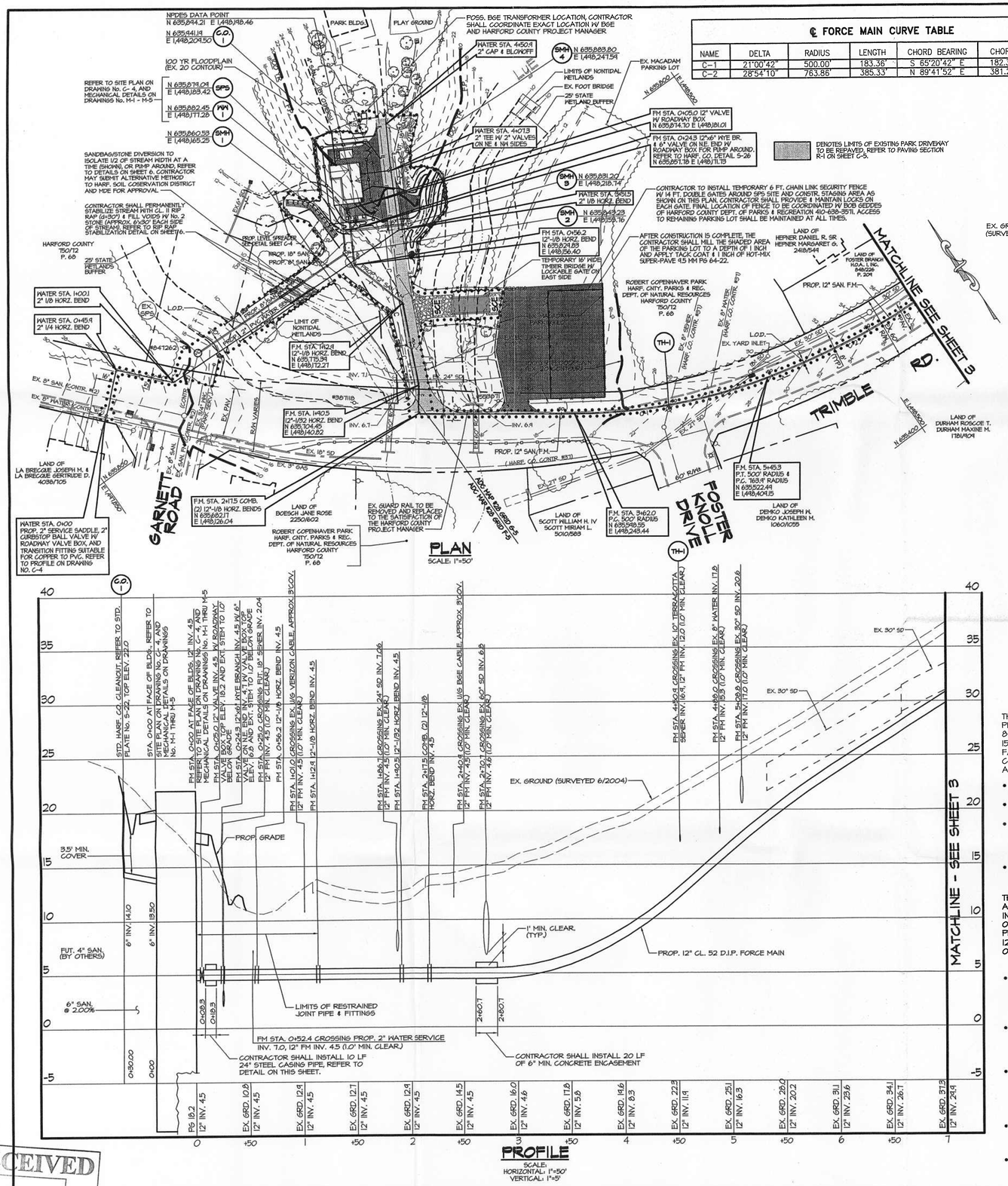
1ST ELECTION DISTRICT

FOSTER BRANCH PUMP STATION & FORCE MAIN
COVER SHEET
SEWER CONTRACT NO. 6646

HARFORD COUNTY, MARYLAND

ENGINEER
MORRIS & RITCHIE ASSOCIATES INC.
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
PHONE (410) 515-9000

DESIGNED: JPD	SCALE	TAX MAP -	SHEET	JOB NO.
TRACED: MJS	AS SHOWN	ADC MAP NO. 28	NO. 1	13632
CHECKED: ----		ADC GRID F5, G5, & H5	OF 33	1



℄ FORCE MAIN CURVE TABLE

NAME	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD	TANGENT
C-1	21°00'42"	500.00'	183.36'	S 65°20'42" E	182.34'	92.72'
C-2	28°54'10"	763.86'	385.33'	N 89°41'52" E	381.25'	196.86'

SUGGESTED SEQUENCE OF CONSTRUCTION AND ABANDONMENT OF EXISTING SPS No. 44 - TRIMBLE ROAD

THE FOLLOWING IS A SUGGESTED SEQUENCE OF CONSTRUCTION FOR THE PROPOSED REPLACEMENT SEWAGE PUMPING STATION AND FORCE MAIN, 8-INCH CONNECTOR SEWER, 18-INCH FOSTER BRANCH COLLECTOR SEWER, 15-INCH OUTFALL SEWER, AND DEMOLITION OR ABANDONMENT OF EXISTING FACILITIES. THE CONTRACTOR SHALL SUBMIT A DETAILED SEQUENCE OF CONSTRUCTION TO THE COUNTY PROJECT MANAGER FOR REVIEW AND APPROVAL AS PART OF THE SHOP DRAWING REVIEW PROCESS.

- CONSTRUCT THE 18-INCH FOSTER BRANCH COLLECTOR SEWER FROM SMH 1 TO SMH 4 INCLUDING THE MANHOLES.
- CONSTRUCT 12-INCH FORCE MAIN FROM FM STA. 1+00 TO FM STA. 2+35.
- CONSTRUCT 2 INCH WATER SERVICE INCLUDING TEE, SERVICE VALVE & TEMP. CAPS FOR THE SEWAGE PUMPING STATION CONNECTION AND THE PARK SERVICE. TEST, DISINFECT, AND WITH D.P.W. APPROVAL, MAKE WATER SERVICE AVAILABLE TO PARK.
- CONSTRUCT SEWAGE PUMPING STATION, 12-INCH FORCE MAIN, 15-INCH OUTFALL SEWER, AND 8-INCH CONNECTOR SEWER.

THE START UP AND TESTING OF THE NEW FACILITIES, AND DEMOLITION/ ABANDONMENT OF THE EXISTING FACILITIES IS DEPENDENT ON THE EDGEWOOD INTERCEPTOR SEWER EXTENSION, PHASE III, DOWNSTREAM OF SMH 10, BEING OPERATIONAL. IF THE SEWER IS OPERATIONAL, AND WITH D.P.W.'S PERMISSION, PROCEED WITH START UP AND TESTING. AFTER THE NEW SEWAGE PUMPING STATION, 12-INCH FORCE MAIN, AND 15-INCH OUTFALL SEWER ARE APPROVED AND OPERATIONAL, HARFORD COUNTY SEWER CONTRACT No. 6202 MAY BE ABANDONED.

- AFTER NEW SEWAGE PUMPING STATION, 12-INCH FORCE MAIN, AND 15-INCH OUTFALL SEWER ARE APPROVED AND OPERATIONAL CONTRACTOR SHALL BEGIN 8-INCH SEWER CONNECTION TO EXISTING SEWAGE PUMPING STATION WET WELL.
- INSTALL TEMPORARY 8-INCH PLUG IN EXISTING SEWER OUT OF MANHOLE IN TRIMBLE ROAD, APPROXIMATELY 50 FEET FROM EXISTING SPS, TO ISOLATE THE EXISTING SPS.
- PROVIDE TEMPORARY PUMP AROUND FROM THE PLUGGED MANHOLE IN TRIMBLE ROAD TO SMH 2. TEMPORARY PUMP AROUND REQUIRED FOR THE DURATION OF THE CONVERSION OF THE EXISTING SPS TO A MANHOLE. WITH D.P.W.'S PERMISSION, A SEPTIC HAULER/PUMP TRUCK MAY BE USED FOR PUMP AROUND PURPOSES.
- DEWATER THE EXISTING SPS WET WELL INTO SMH 2 SIMILARLY TO THE PREVIOUS STEP.
- CUT OR DISCONNECT EXISTING FORCE MAIN WITHIN 6-INCHES OF THE INSIDE WET WELL WALL AND ALLOW FORCE MAIN TO DRAIN INTO WET WELL. CONTINUE DEWATERING UNTIL WET WELL IS CLEAR OF SEWAGE.
- CORE EXISTING WET WELL TO SUIT NEW 8-INCH SEWER AND GASKET AND CONNECT AFTER NEW 8-INCH SEWER HAS BEEN TESTED, AND APPROVED.
- DEACTIVATE/DISMANTLE THE EXISTING SEWAGE PUMPING STATION AND APPURTENANT FACILITIES. DESIGNATED EXISTING EQUIPMENT, CONTROLS, PIPING, ETC. SHALL REMAIN THE PROPERTY OF THE COUNTY AND SHALL BE DELIVERED BY THE CONTRACTOR TO A LOCATION DESIGNATED BY THE COUNTY.
- FILL BOTTOM OF EXISTING WET WELL WITH 2,500 PSI CONCRETE AND CONSTRUCT BRICK CHANNEL AND BENCH TO SUIT FLOW. REFER TO DETAIL ON SHEET C-3.
- INSTALL PERMANENT PLUG IN EXISTING FORCE MAIN AT WET WELL AND AT DISCHARGE MANHOLE. EXISTING DISCHARGE MANHOLE LOCATED 130 FEET +/- NORTH OF GILMOR ROAD ON GARNETT DRIVE. REFER TO LOCATION MAP ON COVER SHEET.
- REMOVE EXISTING WET WELL TOP SLAB AND INSTALL 3-FT. CONE AND WATER TIGHT FRAME AND COVER, REFER TO DETAIL ON SHEET C-3.
- INSTALL STANDARD MANHOLE STEPS.
- WITH D.P.W. APPROVAL REMOVE TEMPORARY PLUG FROM MANHOLE IN TRIMBLE ROAD AND REMOVE TEMPORARY PUMP AROUND EQUIPMENT.

APPROVED	REV. NO.	DATE	REVISION	BY

PLANNING	ENGINEERING
MAINTENANCE CHIEF	OPERATIONS CHIEF
LAND ACQUISITION	CONST. MGMT.
SEDIMENT CONTROL	TRAFFIC CONTROL

AS-BUILT PER INSPECTOR
TRANS. BY: _____
DATE: _____
RESIDENT INSPECTOR:

RECEIVED
APR 7 2008
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

HARFORD COUNTY
MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
DATE

1ST ELECTION DISTRICT

HARFORD COUNTY, MARYLAND

FOSTER BRANCH PUMP STATION & FORCE MAIN
SEWER & FORCE MAIN—PLAN & PROFILE
SEWER CONTRACT NO. 6646

ENGINEER
MORRIS & RITCHIE ASSOCIATES INC.
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
PHONE (410) 515-9000

DESIGNED:	JPD
TRACED:	MJS
CHECKED:	---

SCALE: AS SHOWN

TAX MAP: ADC MAP NO. 28
ADC GRID F5 & G5

SHEET NO. 2 OF 33

JOB NO. 13632

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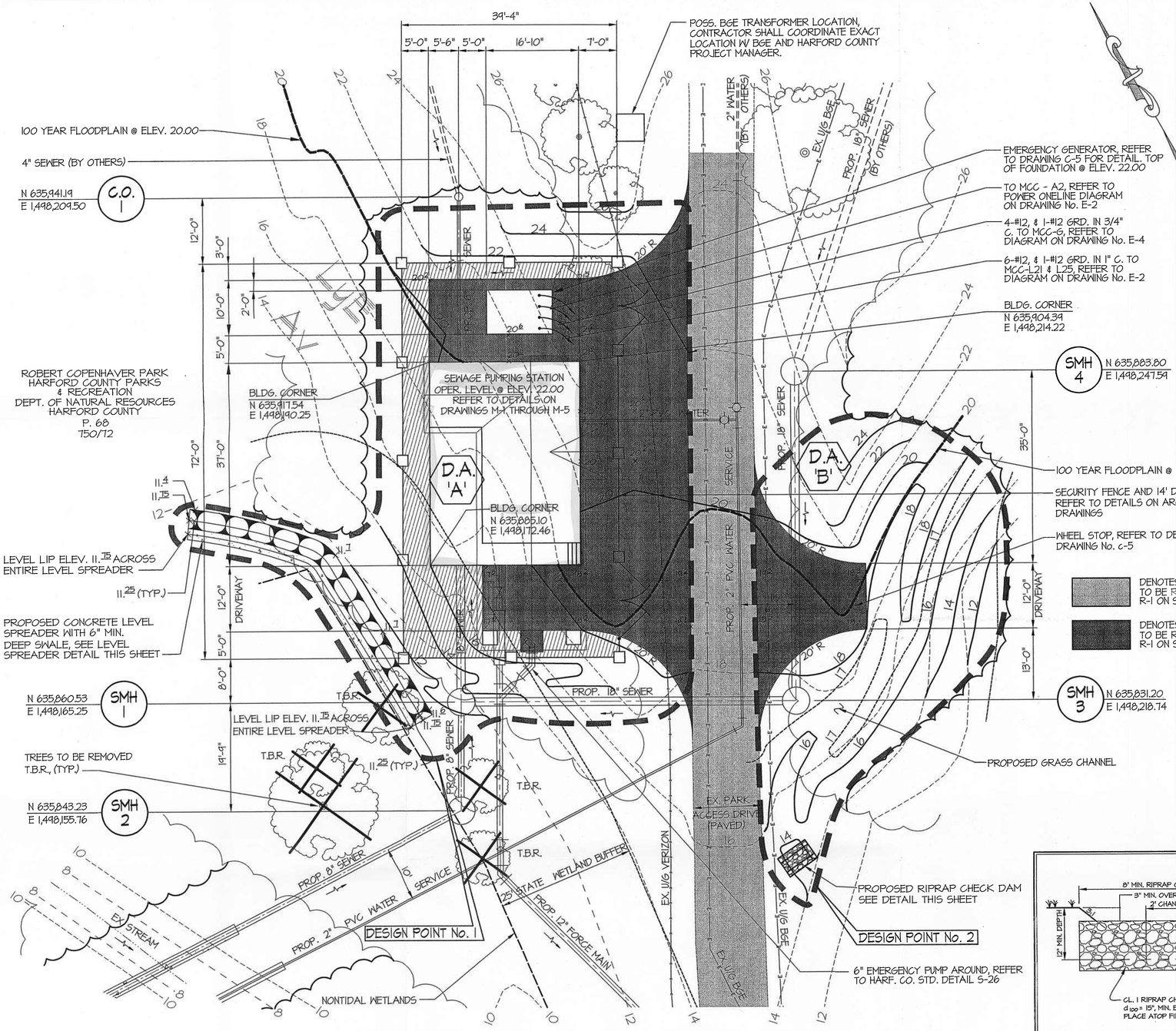


SUMMARY OF STORAGE REQUIREMENTS
DRAINAGE AREA 'A'

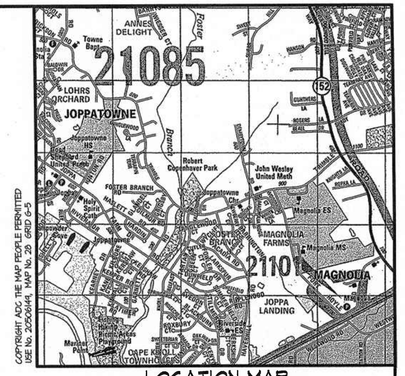
SWM CRITERIA	REQUIREMENT	PROVIDED / NOTES
WATER QUALITY VOLUME (WQv)	259 cu.ft.± 0.0058 ac.ft.±	PROVIDED THROUGH THE GRASS CHANNEL CREDIT
RECHARGE VOLUME (Rev) RECHARGE AREA (Rea)	Rev = 30 cu.ft.± Rea = 349 sq.ft.±	PROVIDED THROUGH THE GRASS CHANNEL CREDIT USING RECHARGE PERCENT AREA
CHANNEL PROTECTION VOLUME (CPv)	NOT REQ'D, 1 YR. DISCHARGE 0.59 c.f.s. \ 2.0 C.F.S.	NOT REQUIRED
OVER BANK FLOOD PROTECTION VOLUME (Qp-10 YEAR MANAGEMENT)	WAIVER FEE-IN LIEU REQUEST	WAIVER FEE-IN LIEU REQUEST
EXTREME FLOOD VOLUME (Qf) (100 YEAR MANAGEMENT)	N/A	N/A

SUMMARY OF STORAGE REQUIREMENTS
DRAINAGE AREA 'B'

SWM CRITERIA	REQUIREMENT	PROVIDED / NOTES
WATER QUALITY VOLUME (WQv)	42 cu.ft.± 0.00096 ac.ft.±	PROVIDED THROUGH THE GRASS CHANNEL CREDIT
RECHARGE VOLUME (Rev) RECHARGE AREA (Rea)	Rev = 30 cu.ft.± Rea = 349 sq.ft.±	PROVIDED THROUGH THE GRASS CHANNEL CREDIT USING RECHARGE PERCENT AREA
CHANNEL PROTECTION VOLUME (CPv)	NOT REQ'D, 1 YR. DISCHARGE 0.59 c.f.s. \ 2.0 C.F.S.	NOT REQUIRED
OVER BANK FLOOD PROTECTION VOLUME (Qp-10 YEAR MANAGEMENT)	WAIVER FEE-IN LIEU REQUEST	WAIVER FEE-IN LIEU REQUEST
EXTREME FLOOD VOLUME (Qf) (100 YEAR MANAGEMENT)	N/A	N/A

DRAINAGE AREA SUMMARY

CRITERIA	DRAINAGE AREA 'A'	DRAINAGE AREA 'B'
AREA	0.135 AC	0.063 AC
TIME OF CONCENTRATION (Tc)	0.10 HRS	0.10 HRS
WEIGHTED 'C' FACTOR (Cw)	.87	.78



LOCATION MAP
SCALE: 1" = 2000'

OWNER'S CERTIFICATION

I/WE CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE DRAWINGS AND ON THE APPROVED SEDIMENT CONTROL DRAWINGS WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF AS-BUILT PLANS, BY A REGISTERED PROFESSIONAL ENGINEER WITHIN 30 DAYS OF COMPLETION.

SIGNATURE DATE

AS-BUILT CERTIFICATION

* I CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE P.E. No.

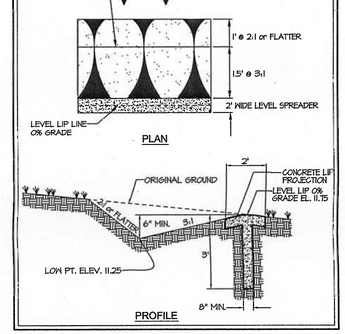
DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTION AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERED STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS STORMWATER MANAGEMENT PLAN HAS BEEN PREPARED BY OR UNDER MY SUPERVISION AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT/WATER MANAGEMENT ADMINISTRATION.

SIGNATURE DATE



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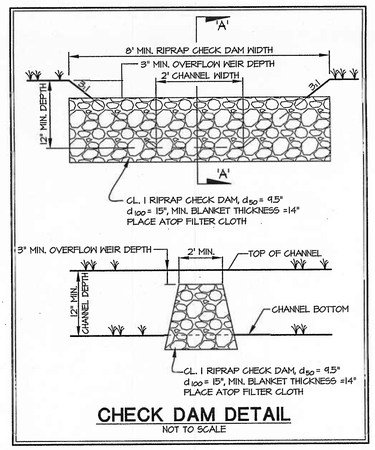


CHECK DAM DETAIL
NOT TO SCALE

HA. CO. SWM BILLING NO. 99737
THESE PLANS HAVE BEEN REVIEWED BY HARFORD COUNTY AND MEET THE TECHNICAL REQUIREMENTS FOR SWM ONLY.

REVIEWED FOR TECHNICAL SUFFICIENCY:

STORMWATER MANAGEMENT SECTION

REVIEW AND APPROVAL RECOMMENDED:

CHIEF ENGINEER

APPROVAL RECOMMENDED

DEPUTY DIRECTOR OF PUBLIC WORKS

APPROVED:

DIRECTOR OF PUBLIC WORKS

*SWM SHEET 1 OF 1

APPROVED	REV. NO.	DATE	REVISION	BY

PLANNING	ENGINEERING
MAINTENANCE CHIEF	OPERATIONS CHIEF
LAND ACQUISITION	CONST. MGMT.
SEDIMENT CONTROL	TRAFFIC CONTROL

AS-BUILT PER INSPECTOR
TRANS. BY:
DATE:
RESIDENT INSPECTOR:

SITE SECURITY

1. THE CONTRACTOR SHALL INSTALL STAINLESS STEEL TAMPERPROOF PADLOCK HASPS ON ALL DOORS AND HATCHES USING STAINLESS STEEL HARDWARE.
2. DURING CONSTRUCTION, PRIOR TO ACCEPTANCE BY HARFORD COUNTY D.P.W., THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY. PROVISIONS SHALL BE MADE FOR ACCESS BY HARFORD COUNTY D.P.W. PERSONNEL.
3. WHEN ACCEPTED BY HARFORD COUNTY D.P.W., ALL CONTRACTOR LOCKS SHALL BE REMOVED. HARFORD COUNTY D.P.W. WILL PROVIDE AND INSTALL THEIR OWN STANDARD PADLOCKS.

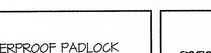
SEWAGE PUMPING STATION SITE PLAN
SCALE: 1"=10'

PLANT LIST

SYMBOL	QTY	BOTANICAL NAME/COMMON NAME	SIZE	ROOT	REMARKS
PERENNIALS	108	MITCHELLA REPENS PARTRIDGEBERRY	1 YEAR	FLAT	1' x 1' SPACING

LANDSCAPE PLAN GENERAL NOTES

1. CONTRACTOR SHALL APPLY A MINIMUM OF 1 1/2" OF HARDWOOD MULCH TO THE PLANTING AREA.
2. CONTRACTOR SHALL GUARANTEE SURVIVAL OF PLANTINGS FOR 2 YEARS.



SPACING "D"	ROW "A"	# OF PLANTS/S.F.
6" O.C.	5.20"	4.61
8" O.C.	6.93"	2.60
10" O.C.	8.66"	1.66
12" O.C.	10.40"	1.15
15" O.C.	13.00"	.738
18" O.C.	15.60"	.512
24" O.C.	20.80"	.290
30" O.C.	26.00"	.185
36" O.C.	30.00"	.128

NOTE: FOR USE ONLY WHEN PLANTS ARE SPACED EQUAL DISTANCE FROM EACH OTHER AS SHOWN, AND SPECIFIED IN THE PLANT LIST.

PLANT SPACING CHART
NOT TO SCALE

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER DATE

1ST ELECTION DISTRICT HARFORD COUNTY, MARYLAND

FOSTER BRANCH PUMP STATION & FORCE MAIN
SEWAGE PUMPING STATION SITE PLAN & DETAILS
SEWER CONTRACT NO. 6646

ENGINEER
MORRIS & RITCHIE ASSOCIATES INC.
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
PHONE (410) 515-9000

DESIGNED:	SCALE	TAX MAP	SHEET	JOB NO.
TRACED:	AS SHOWN	ADC MAP NO. 28	NO. 6	13632
CHECKED:		ADC GRID F5 & G5	OF 33	C-5

GENERAL NOTES

1. GEO-TECHNOLOGY ASSOCIATES, INC. PREPARED THIS PLAN BASED ON A BASE MAP ENTITLED "FOSTER BRANCH PUMP STATION & FORCE MAIN, SEWER CONTRACT NUMBER 6646" AND PROVIDED BY MORRIS & RITCHIE ASSOCIATES, INC.
2. THE SITE CAN BE REFERENCED ON HARFORD COUNTY TAX MAP 69, GRID 18, PARCEL 68.
3. THE PROJECT SITE IS LOCATED ENTIRELY WITHIN THE 100-YEAR FLOODPLAIN AS SHOWN ON FIRM PANELS #240250026 D AND #240250032 D FOR HARFORD COUNTY. THE 100-YEAR FLOODPLAIN ELEVATION IS 20.0 FEET.
4. THE PROJECT SITE IS LOCATED WITHIN THE RESOURCE CONSERVATION AREA (RCA) OVERLAY ZONE.
5. PUBLIC WATER AND SEWER - HARFORD COUNTY, MARYLAND
6. CURRENT ZONING: RECREATIONAL
7. THE FINISHED FLOOR ELEVATION OF THE PUMPING STATION WILL BE AT ELEVATION 20.
8. THE PROJECT SITE IS UNDERLAID BY ALLUVIAL LAND (Av) AND LOAMY AND CLAYEY (LgE) SOILS.
9. THERE ARE NO STEEP SLOPES WITHIN THE LIMITS OF THE PROJECT SITE.
10. GTA IS NOT AWARE OF ANY RARE, THREATENED, OR ENDANGERED SPECIES ON OR WITHIN THE VICINITY OF THE PROJECT SITE. CORRESPONDENCE WAS SENT TO THE UNITED STATES FISH & WILDLIFE SERVICE (USFWS) AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR) WILDLIFE & HERITAGE DIVISION REQUESTING INFORMATION ON ANY KNOWN NATURAL HERITAGE AREAS AND/OR THE KNOWN PRESENCE OF THREATENED AND ENDANGERED SPECIES IN THE PROJECT AREA. AGENCY RESPONSES ARE INCLUDED IN THE ENVIRONMENTAL ASSESSMENT REPORT.
11. A JOINT PERMIT APPLICATION FOR THE WETLAND AND FLOODPLAIN IMPACTS PROPOSED HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION (TRACKING NO. 04-NT-0481/200516011) AND IS CURRENTLY UNDER REVIEW.

FOREST MITIGATION

TOTAL ON-SITE FOREST: 244,502± SF (5.61 AC)

TOTAL PROPOSED CLEARING: 8,515 SF (0.20 AC)

PERCENT OF TOTAL FOREST TO BE CLEARED: 3.5%

FOREST MITIGATION IS REQUIRED AT A 1:1 RATIO.

FOREST MITIGATION PROPOSED: 9,556 SF (0.21 AC)

STORMWATER QUALITY

EXISTING IMPERVIOUS SURFACE:

ACCESS DRIVE	-	5,962 SF
PARKING LOT	-	21,104 SF

NEW IMPERVIOUS SURFACE:

FOOTPRINT OF NEW PUMPING STATION	-	3,364 SF

PLANTINGS FOR MAINTENANCE OF STORMWATER QUALITY: 1 TREE CLUSTER PER EVERY 400 SF OF NEW IMPERVIOUS = 9 CLUSTERS

NORTH

PROPOSED REFORESTATION AREA 1
2,454 SF (0.05 ACRES)

PROPOSED CLUSTER PLANTING AREA 3,364 SF

HABITAT PROTECTION AREA BOUNDARY

EX. POND

EX 6" SD

PROP. 18" SAN.

100 FOOT BUFFER

100-YEAR FLOODPLAIN

TEMP. SANDBAG DIVERSION

PROP. 8" SAN.

8" SAN.

100-YEAR FLOODPLAIN

TRIMBLE ROAD

GARNETT ROAD

LIMIT OF NONTIDAL WETLAND

25' STATE WETLAND BUFFER

PROP. 12" SAN. F.M.

PROPOSED REFORESTATION AREA 2
4,236 SF (0.09 ACRES)

TEMPORARY 16' WIDE TIMBER BRIDGE

TOP OF BANK

INTERMITTENT CHANNEL

SCE

PROPOSED REFORESTATION AREA 3
2,866 SF (0.06 ACRES)

EX SPS

EX. 60" RCP

EX. 24" SD

TEMP. SANDBAG DIVERSION

EX. MACADAM PARKING LOT (CONSTR. STAGING AREA)

PROP. 12" SAN. F.M.

EX. 60" RCP

0' 5' 10' 20' 40'

SCALE: 1"=20'

LEGEND

- PROPOSED CLEARING
- PROPOSED NATIVE PLANTINGS
- PROPOSED NATIVE PLANTINGS
- PROPOSED LANDSCAPING
- PROPOSED CONTOUR
- PROPOSED BUILDING
- PROPOSED TREELINE
- EXISTING TREE
- EXISTING TREELINE
- 100-YEAR FLOODPLAIN ELEVATION
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PAVEMENT
- PROPERTY BOUNDARY

OWNERS:
HARFORD COUNTY COMMISSIONERS
220 SOUTH MAIN STREET
BEL AIR, MARYLAND 21014

PREMISES ADDRESS:
TRIMBLE ROAD, JOPPA 21085

LEGAL DESCRIPTION:
PARCEL 1 PARK 10,422
TRIMBLE ROAD
ROBERT COPENHAVEN PARK

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FAX: (410) 515-4895

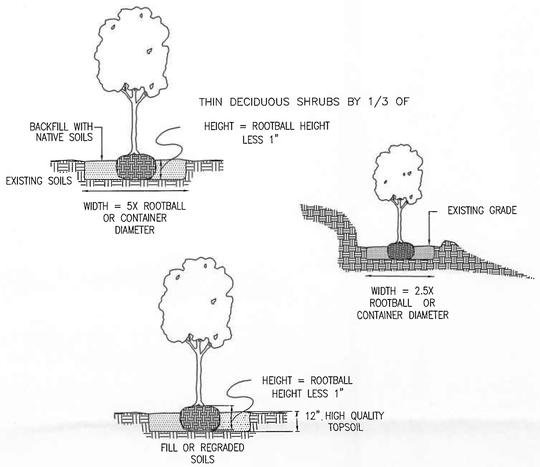
SANITARY SEWER CONNECTOR
ENVIRONMENTAL ASSESSMENT PLAN
FOSTER BRANCH
HARFORD COUNTY, MARYLAND

DATE	REVISIONS		
		JOB NO:	051381
		SCALE:	1"=20'
		DATE:	MARCH 2006
		DRAWN BY:	GSM
		DESIGN BY:	GSM
		REVIEW BY:	MDR
		SHEET:	1 OF 2

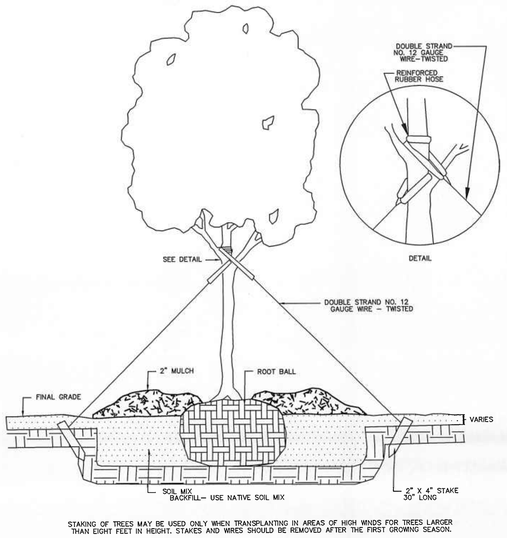
RECEIVED
APR 7 2006
CRITICAL AREA COMMISSION
Chesapeake & Atlantic Coastal Bays

G:\GTA\00500-Various MDA\13832.01-Foster Branch Sewer\Plot\12-15-05-13838-CRITICAL AREA.dwg

PLANTING CONTAINER GROWN AND B&B STOCK



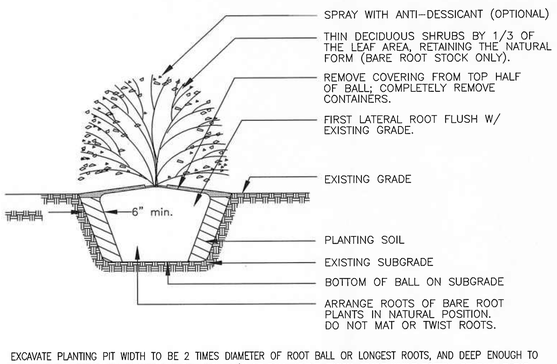
STAKED TREE SPECIFICATION



STAKING OF TREES MAY BE USED ONLY WHEN TRANSPLANTING IN AREAS OF HIGH WINDS FOR TREES LARGER THAN EIGHT FEET IN HEIGHT. STAKES AND WIRES SHOULD BE REMOVED AFTER THE FIRST GROWING SEASON.

SHRUB/HERB PLANTING DETAIL

N.T.S.



EXCAVATE PLANTING PIT WIDTH TO BE 2 TIMES DIAMETER OF ROOT BALL OR LONGEST ROOTS, AND DEEP ENOUGH TO PERMANENTLY ESTABLISH PLANTING DEPTH WITH 1/8 OF BALL ABOVE FINISH GRADE WHILE BOTTOM OF BALL RESTS ON EXISTING SUBGRADE.

1:1 REFORESTATION SUMMARY PLANTING SCHEDULE

QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	FOREST LAYER	SPACING	INDICATOR STATUS*
FORESTED FLOODPLAIN RIPARIAN (9,556 SF)						
5	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	CANOPY	20X20	NI
3	PLATANUS OCCIDENTALIS	SOURWOOD	1.5" CALIPER	CANOPY	20X20	FACW-
3	BETULA NIGRA	RIVER BIRCH	1.5" CALIPER	CANOPY	20X20	FACW
4	AMELANCHIER ARBOREA	SERVICEBERRY	3 GAL. CONT.	UNDERSTORY	12X12	FAC-
4	CHIOANTHUS VIRGINICUS	WHITE FRINGETREE	3 GAL. CONT.	UNDERSTORY	12X12	FAC+
10	CORNUS AMMOMUM	SILKY DOGWOOD	3 GAL. CONT.	UNDERSTORY	12X12	FACW
10	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	1 GAL. CONT.	SHRUB	12x12	FAC+
9	VACCINIUM CORYMBOSSUM	HIGHBUSH BLUEBERRY	1 GAL. CONT.	SHRUB	12x12	FACW-

QUANTITY	NATIVE HERBACEOUS SEED (ALL AREAS)	HAND BROADCAST SEEDING RATE	INDICATOR STATUS*
4.7 LB.	WETLAND MIX FOR SHADED OBL-FACW MIX: ERNMX-137	1/2 LB. PER 1000 SQ. FT.	OBL/FACW

*WETLAND INDICATOR STATUS FOR REGION 1.

PLANTS SHALL BE LOCATED ACCORDING TO THE DEGREE OF SOIL SATURATION AT THE TIME OF PLANTING AND THE INDICATOR STATUS OF EACH SPECIES. FACW+ OR FACW ARE BEST SUITED IN AND/OR NEAREST THE MOST SATURATED SOILS AND/OR THE STREAM BANK.

AREA 1

QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
AREA 1 - 2,454 SF (0.05 ACRES)				
1	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	20X20
1	PLATANUS OCCIDENTALIS	SOURWOOD	1.5" CALIPER	20X20
1	BETULA NIGRA	RIVER BIRCH	1.5" CALIPER	20X20
4	CORNUS AMMOMUM	SILKY DOGWOOD	3 GAL. CONT.	12X12
4	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	1 GAL. CONT.	12x12
4	VACCINIUM CORYMBOSSUM	HIGHBUSH BLUEBERRY	1 GAL. CONT.	12x12

QUANTITY	NATIVE HERBACEOUS SEED (ALL AREAS)	HAND BROADCAST SEEDING RATE
1.2 LB	WETLAND MIX FOR SHADED OBL-FACW MIX: ERNMX-137	1/2 LB. PER 1000 SQ. FT.

AREA 2

QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
AREA 2 - 4, 236 SF (0.09 ACRES)				
3	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	20X20
1	PLATANUS OCCIDENTALIS	SOURWOOD	1.5" CALIPER	20X20
1	BETULA NIGRA	RIVER BIRCH	1.5" CALIPER	20X20
2	AMELANCHIER ARBOREA	SERVICEBERRY	3 GAL. CONT.	12X12
2	CHIOANTHUS VIRGINICUS	WHITE FRINGETREE	3 GAL. CONT.	12X12
4	CORNUS AMMOMUM	SILKY DOGWOOD	3 GAL. CONT.	12X12
4	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	1 GAL. CONT.	12x12
4	VACCINIUM CORYMBOSSUM	HIGHBUSH BLUEBERRY	1 GAL. CONT.	12x12

QUANTITY	NATIVE HERBACEOUS SEED (ALL AREAS)	HAND BROADCAST SEEDING RATE
2.1 LB	WETLAND MIX FOR SHADED OBL-FACW MIX: ERNMX-137	1/2 LB. PER 1000 SQ. FT.

AREA 3

QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
AREA 3 - 2,866 SF (0.06 ACRES)				
1	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	20X20
1	PLATANUS OCCIDENTALIS	SOURWOOD	1.5" CALIPER	20X20
1	BETULA NIGRA	RIVER BIRCH	1.5" CALIPER	20X20
2	AMELANCHIER ARBOREA	SERVICEBERRY	3 GAL. CONT.	12X12
2	CHIOANTHUS VIRGINICUS	WHITE FRINGETREE	3 GAL. CONT.	12X12
3	CORNUS AMMOMUM	SILKY DOGWOOD	3 GAL. CONT.	12X12
3	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	1 GAL. CONT.	12x12
2	VACCINIUM CORYMBOSSUM	HIGHBUSH BLUEBERRY	1 GAL. CONT.	12x12

QUANTITY	NATIVE HERBACEOUS SEED (ALL AREAS)	HAND BROADCAST SEEDING RATE
1.4 LB	WETLAND MIX FOR SHADED OBL-FACW MIX: ERNMX-137	1/2 LB. PER 1000 SQ. FT.

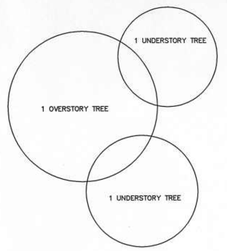
MAINTENANCE OF STORMWATER QUALITY CLUSTER PLANTINGS AREA 4

QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
AREA 3 - 3,364 SF (0.07 AC)				
4 CLUSTERS OF 1 OVERSTORY TREE & 2 UNDERSTORY TREES - 1,600 SF CREDIT				
4	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	OVERSTORY
4	AMELANCHIER ARBOREA	SERVICEBERRY	3 GAL. CONT.	UNDERSTORY
4	CORNUS AMMOMUM	SILKY DOGWOOD	3 GAL. CONT.	UNDERSTORY
5 CLUSTERS OF 1 OVERSTORY TREE & 3 SHRUBS - 1,764 SF CREDIT				
5	OXYDENDRON ARBOREUM	AMERICAN SYCAMORE	1.5" CALIPER	OVERSTORY
5	SMABUCUS CANADENSIS	ELDERBERRY	1 GAL. CONT.	SHRUB
5	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	1 GAL. CONT.	SHRUB
5	VACCINIUM CORYMBOSSUM	HIGHBUSH BLUEBERRY	1 GAL. CONT.	SHRUB

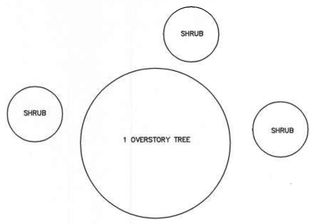
QUANTITY	NATIVE HERBACEOUS SEED (ALL AREAS)	HAND BROADCAST SEEDING RATE
2.1 LB	WETLAND MIX FOR SHADED OBL-FACW MIX: ERNMX-137	1/2 LB. PER 1000 SQ. FT.

TYPICAL CLUSTER DETAIL

4 CLUSTERS OF 1 OVERSTORY TREE & 2 UNDERSTORY TREES



4 CLUSTERS OF 1 OVERSTORY TREE & 2 UNDERSTORY TREES



PLANTING - STANDARDS AND SPECIFICATIONS

1. PLANT MATERIAL SELECTION

A. ALL PLANT MATERIALS GREATER THAN 1" CALIPER SHALL MEET OR EXCEED THE REQUIREMENTS OF THE AMERICAN NURSERYMEN'S ASSOCIATION STANDARDS. ALL PLANTS SHALL BE TYPICAL OF THE SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF 535 GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED, AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS, AND MECHANICAL INJURIES.

B. PLANTING STOCK LESS THAN 1" CALIPER SHOULD MEET THE FOLLOWING STANDARDS.

SEEDLINGS/WHIPS:
HARDWOODS - ¼" TO ½" CALIPER WITH ROOTS NOT LESS THAN 8" LONG
SHRUBS: ⅜" OR LARGER CALIPER WITH 8" ROOT SYSTEM

2. PLANTING SITE PREPARATION

A. UNDISTURBED SITES.

DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. FOR PLANTINGS WHERE LARGE STOCK IS CHOSEN, THE PLANTING FIELD OF RADIUS OF 5 TIMES THE DIAMETER OF THE ROOT BALL IS RECOMMENDED.

IN AREAS OF STEEP SLOPES OR ERODIBLE SOILS, SOIL DISTURBANCE SHOULD BE LIMITED TO THE PLANTING FIELD WHOSE RADIUS IS EQUAL TO 2.5 X DIAMETER OF THE ROOT BALL.

3. PLANTING PERIOD

DEPENDING ON THE SIZE STOCK BEING USED, THE ALLOWABLE PLANTING WINDOWS DIFFER.

4. PLANT MATERIAL STORAGE

IT IS RECOMMENDED THAT PLANTING OCCUR WITHIN 24 HOURS OF DELIVERY TO THE SITE. PLANT MATERIALS WHICH ARE LEFT UNPLANTED FOR MORE THAN 24 HOURS SHOULD BE PROTECTED FROM DIRECT SUN AND WEATHER AND KEPT MOIST. BARE ROOT STOCK, WHICH ARE UNPLANTED FOR MORE THAN 24 HOURS, SHOULD BE HEELED IN. NURSERY STOCK SHOULD NOT BE LEFT UNPLANTED FOR MORE THAN 2 WEEKS. ON-SITE OR LOCAL TRANSPLANTED MATERIALS SHOULD BE STORED IN TREE BANKS IF UNPLANTED FOR MORE THAN 24 HOURS.

5. ON-SITE INSPECTION

PRIOR TO PLANTING, PLANTING STOCK SHOULD BE INSPECTED. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS, AND DISEASE SHOULD BE REPLACED.

6. PLANTING SPECIFICATIONS

A. CONTAINER-GROWN STOCK

SUCCESSFUL PLANTING OF CONTAINER-GROWN STOCK REQUIRES CAREFUL SITE PREPARATION AND INSPECTION OF THE PLANT MATERIAL ROOT SYSTEM. CAUTION IS RECOMMENDED WHEN SELECTING PLANTS GROWN IN A SOILS MEDIUM DIFFERENT FROM THAT OF THE PLANTING SITE. THE PLANT SHOULD BE REMOVED FROM THE CONTAINER AND THE ROOTS GENTLY LOOSENED FROM THE SOILS. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED AND SUBSTITUTED IF NECESSARY. ROOTS MAY NOT BE TRIMMED ON-SITE DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.

THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED. NATIVE STOCKPILED SOILS SHOULD BE USED TO BACKFILL PLANTING FIELD. RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH 2 TO 4 INCHES OF MULCH.

B. BALLED AND BURLAPPED TREES

TREE SPADES ARE USUALLY EMPLOYED TO PLANT LARGER TREE STOCK (BALLED AND BURLAPPED STOCK GREATER THAN 2" CALIPER). THIS TECHNIQUE IS PARTICULARLY USEFUL WHEN TRANSPLANTING ON-SITE OR WITH LOCAL PLANT MATERIALS. FOR TREES LARGER THAN 6" DIAMETER AT BREAST HEIGHT (DBH), SPECIALIZED EQUIPMENT IS RECOMMENDED.

BALLED AND BURLAPPED TREES MUST BE HANDLED WITH CARE WHILE PLANTING. TREES SHOULD NOT BE PICKED UP BY THE TRUNK OR DROPPED, AS BOTH PRACTICES WILL TEND TO SEPARATE THE TRUNK FROM THE ROOT BALL. PRIOR TO PLANTING, ROOT BALLS SHOULD BE KEPT MOIST.

7. PLANTING METHODS

PLANTING FIELDS SHOULD BE CREATED. USE WATERING TO SETTLE SOIL BACKFILLED AROUND TREES. STOCKPILED NATIVE TOPSOILS, IF AVAILABLE, SHOULD BE USED TO BACKFILL THE PLANTING FIELD. AMENDMENTS ARE NOT RECOMMENDED IN THE PLANTING FIELD, AS STUDIES HAVE SHOWN THAT ROOTS WILL BE ENCOURAGED TO STAY WITHIN THE AMENDED SOILS. SOILS SHOULD BE RAKED EVENLY OVER THE PLANTING FIELD AND COVERED WITH 2 TO 4 INCHES OF MULCH.

STAKING OF TREES IS NOT RECOMMENDED EXCEPT IN AREAS OF HIGH WINDS. STAKINGS MAY BE USED FOR TREES LARGER THAN 8 FEET IN HEIGHT. MOVEMENT IS NECESSARY TO STRENGTHEN THE TRUNK OF THE PLANTED TREE. IF STAKES ARE USED, THEY SHOULD BE REMOVED AFTER THE FIRST GROWING SEASON. WRAPPING IS ALSO NOT RECOMMENDED DUE TO THE INCREASED OPPORTUNITIES FOR INSECT INFESTATION AND DISEASE.

8. POST CONSIDERATIONS

A. CONTROL OF COMPETING VEGETATION

IN SOME CASES, UNWANTED VEGETATION GROWING NEAR NEWLY PLANTED TREES CAN TAKE OVER THE SITE. THE EXTENT TO WHICH THIS PROBLEM IS CONTROLLED DEPENDS ON THE ABILITY OF THE PLANTED MATERIAL TO WITHSTAND THE INTRUSION. SMALLER TREES NEED MORE CARE, ALTHOUGH SOME SEEDLINGS SURVIVE AMONG THE OVERGROWTH AND SHADE IT OUT WHEN THEY REACH A GREATER HEIGHT. AS A PREVENTIVE MEASURE, CONSIDER THE POTENTIAL FOR GROWTH OF INVASIVE SPECIES WHILE CHOOSING A REFORESTATION OR AFFORESTATION AREA. UNFORTUNATELY, GOOD SITES FOR REFORESTATION AND AFFORESTATION ARE GENERALLY GOOD SITES FOR UNWANTED VEGETATION AS WELL.

B. PROTECTION: PESTS, DISEASES AND MECHANICAL INJURY

AN INTEGRATED PEST MANAGEMENT (IPM) PROGRAM IS ONE OF THE MOST EFFECTIVE AND SAFE APPROACHES FOR MAINTAINING A HEALTHY FOREST. THE BASICS OF IPM INCLUDE PROPER SPECIES SELECTION FOR THE SITE, GOOD PRUNING, MULCHING AND FERTILIZING PRACTICES, REGULAR MONITORING, AND PROPER TIMING OF NECESSARY SPRAYS.

THE GOAL OF THE FOSTER BRANCH REFORESTATION PLAN IS TO ENHANCE THE EXISTING RIPARIAN FOREST WHILE SATISFYING THE REFORESTATION REQUIREMENTS OUTLINED IN THE HARFORD COUNTY ZONING CODE FOR LANDS WITHIN THE CHESAPEAKE BAY CRITICAL AREA. PLANTING AREAS WILL BE MAINTAINED BY THE HARFORD COUNTY DEPARTMENT OF PARKS AND RECREATION STAFF AND AN IPM PROGRAM IS NOT NECESSARY AT THIS TIME.

GEO-TECHNOLOGY ASSOCIATES, INC.
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SANITARY SEWER CONNECTOR
ENVIRONMENTAL ASSESSMENT PLAN
FOSTER BRANCH

HARFORD COUNTY, MARYLAND

DATE	REVISIONS

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CRITICAL AREA COMMISSION
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REVIEW BY:	MDR
SHEET:	2 OF 2

G:\GTA\00500-Various MDR\13932.01-Foster Branch Sewer\Plot\12-15-05-13836-CRITICAL AREA.dwg